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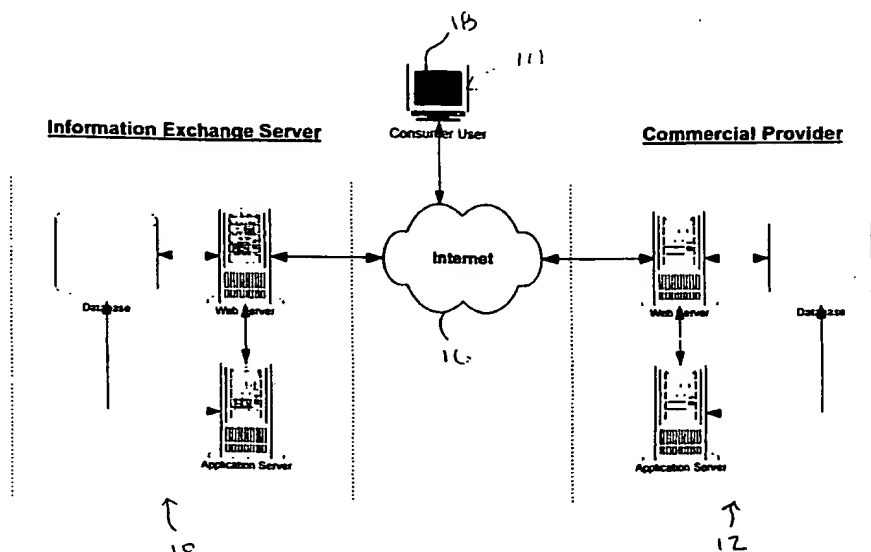


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(57) Abstract: A system and method of allowing an information exchange server and commercial provider to securely exchange both self-identifying and consumer-user information in order to enable the consumer-user to search for, retrieve and/or purchase information, services and products without the need to register consumer-user information with each commercial provider.

WO 01/01276 A2

## **SYSTEM AND METHOD FOR INFORMATIONAL AND COMMERCIAL TRANSACTIONS VIA AN INFORMATION EXCHANGE NETWORK**

This application claims priority from U.S. Provisional Application No. 60/141,326, filed on June 28, 1999.

### Technical Field

The present invention relates generally to a system and method of exchanging information and performing commercial transactions over information exchange networks, such as the Internet. More particularly, the invention relates to a system and method that allow an information exchange server to distribute, upon request of a consumer-user, information about the consumer-user to a third-party commercial provider during an informational or commercial transaction over an information exchange network.

### Background of the Invention

Today, the nature of information exchange networks, such as the Internet, facilitates pervasive and ubiquitous access to and use of on-line services that includes informational and commercial transactions. Because economic efficiencies of on-line informational and commercial transactions is directly related to a commercial provider's ability to target consumer-users and the ability of the consumer-user to timely and effectively utilize an information exchange network, there is an increasing need to improve the seamless delivery of products and services on-line.

Currently, commercial providers require consumer-users to directly register with each separate commercial provider with whom the consumer-user wishes to transact. Consequently, the consumer-user must repeatedly enter the same consumer information such as billing, payment and shipping information.

Accordingly, there is a need for systems and methods that efficiently provide products and services over information exchange networks to a consumer-user while not requiring the consumer-user to repeatedly register the consumer-user's consumer information for every information or commercial transaction he or she conducts over a network. Additionally, there is a need for systems and methods that will timely provide a third-party commercial provider pertinent consumer-user information from a reliable central information exchange server. Even though the information exchange server provides the commercial provider with reliable consumer-user information, the information exchange server must still allow a

consumer-user to directly interface with the commercial provider of the desired goods, services and information.

Currently, there are a handful of software programs and services that allow very limited consumer information storage and distribution, such as digital wallets. The use of these programs and services is constrained by limitations that include the lack of standardization, and varying consumer information requirements.

Recently, new types of digital wallet formats have been proposed that store personal information on a user's personal computer where a browser plug-in can retrieve it and automatically populate an HTML form for submission to an Internet site that can understand the conventions used to name various specified data fields.

Present Internet sites that maintain wallet information on behalf of their users settle the desired transactions themselves, but do not distribute the customer information to the supplier or distributor of the goods, services and information for settlement.

#### Summary of the Invention

The invention generally relates to systems and methods for providing highly efficient integrated interactions between information exchange servers, commercial providers and consumer-users during informational and commercial transactions.

The information exchange server, along with the commercial provider, allows an organization to acquire day-to-day operational and long-term strategic resources that may enhance the value of the organization and help the organization in future endeavors.

The information and services available directly from either the information exchange server or the commercial provider may include services and products for, by way of example, online publishing, instructional programs, sales and marketing information, financial planning resources, personnel management techniques, technology information, and hardware and software purchasing advice.

In one embodiment of the invention, the interface between the consumer-user interface and a commercial provider via the information exchange server makes the commercial provider's Internet site appear to be "co-branded" with the information exchange server's site. For example, the consumer-user will see product offerings from the commercial provider while still maintaining the "look and feel" of the information exchange server site.

"Co-branded" means that both the information exchange server and the commercial provider share the site and bring to it the market identification and consumer perception created by the display of identifying indicia, such as trademarks, the "look and feel" of the

site and the manner in which business is conducted. This co-branding allows a commercial provider to provide goods and services to consumer-users who are registered with the information exchange server. For example, the information exchange server might provide a catalog of the goods and services of commercial providers on the information exchange server's own Internet site. This allows a consumer-user to transact with a commercial provider by using the information exchange server as an intermediary. The information exchange server site will also allow a consumer-user to access a commercial provider directly by use of a hyperlink to the commercial provider's own Internet site.

In another embodiment, the consumer-user may customize the interface with the information exchange server site to recall and display to the consumer-user's own specifications. For example, the consumer-user may customize the interface to only show the commercial provider with whom the consumer-user has transacted. Additionally, the consumer-user may provide specific information that is only to be provided to designated commercial providers.

Therefore, the consumer-user does not need to register with commercial providers individually as the consumer-user interface may be customized so that it provides billing, payment or shipping information to commercial providers and self-authenticates such information. These information exchanges may be conducted transparently, i.e. automatically, or the exchanges may require the final approval of the consumer-user.

In another embodiment, the information exchange server may provide a single integrated statement of all goods and services purchased by a consumer-user at all of the commercial provider sites in which transactions were initiated and consummated.

In other embodiments, the invention provides process flows, messages, data definition, authentication, and security methods that are used during information exchanges.

The invention may be a general interface for any commercial provider who provides goods and services but relies on an information exchange server to provide consumer information about the consumer-user.

In another embodiment, the invention provides a general interface for any commercial provider of information and services that do not require direct customer billing.

The invention applies not only to tangible goods, but also to services, computer-readable information and electronic information.

The above, and other objects, features and advantages of the present invention will become readily apparent from the following detailed description thereof which is to be read in connection with the accompanying drawings

### Description of the Drawings

Figure 1 is a block diagram illustrating the flow of information between the information exchange server, commercial provider and the consumer-user.

Figure 2 is a block diagram illustrating the exchange of information between information exchange server and commercial provider in accordance with the present invention.

Figure 3 is a block diagram illustrating the overall logical architecture of the present invention.

Figure 4 is a block diagram illustrating the classes of messaging that can be created and sent by the commercial provider.

### Detailed Description of the Invention

The invention provides systems and methods that utilize an information exchange network to secure the acquisition of consumer-user information and information concerning commercial providers and their goods and services. The following descriptions refer to one information exchange server, commercial provider, and consumer-user, but it should be understood that the invention includes multiple information exchange servers, commercial providers, and consumer-users.

Figure 1 illustrates the interaction between the information exchange server 10, commercial provider 12 and the consumer user 14. The invention provides a system and method for the systematic and secure interaction between an information exchange server 10 and a commercial provider 12, thereby permitting a consumer-user 14 to register with the information exchange server 10 or with the commercial provider 12 by way of redirection from the information exchange server 10. More particularly, the invention allows a consumer-user 14 to obtain products, services and information from either the information exchange server 10 or the commercial provider 12. The present invention also allows the exchange of a consumer-user's consumer information 15 between the information exchange server 10 and commercial provider 12.

Upon the request of a consumer-user 14, an information exchange server 10 may provide the consumer-user's information 15 to a commercial provider 12 through an information exchange network 16, such as the Internet. The consumer-user 14 may provide

additional information to the commercial provider 12 directly or the consumer-user 14 may provide the additional information by using the information exchange server 10. The commercial provider 12 may return purchase and status information 17 to the information exchange server 10 during the purchase or registration information exchange or the commercial provider 12 may return the information 17 to the information exchange server 10 asynchronously from the purchase or registration information exchange.

The invention allows an information exchange server 10 to facilitate the informational and commercial transaction between a consumer-user 14 and a commercial provider 12 over an information exchange network 16. The informational and commercial transaction may include informational searches and requests concerning a commercial provider 12 and the commercial provider's 12 goods and services. The informational and commercial transaction may also include the acquisition of goods and services of a commercial provider 12.

The invention allows an information exchange server 10 to act as a central repository of consumer-user profiles. The consumer-user profiles may contain consumer information 15 pertinent to the purchase and delivery of goods and services such as billing and shipping information. The information exchange server 10 may communicate with a commercial provider 12 and exchange consumer information 15 with the commercial provider 12. This communication and exchange of information 15 may be conducted over a secure or encrypted information exchange network 16 connection such as a secure Internet connection.

The invention may also provide simultaneous and contemporaneous communication and exchange of information between (1) an information exchange server 10 and multiple commercial providers, or (2) multiple information exchange servers and a commercial provider 12, or (3) multiple information exchange servers and multiple commercial providers. The invention also allows contemporaneous and simultaneous informational and commercial transactions between (1) a consumer-user 14 and multiple commercial providers or multiple information exchange servers, (2) multiple consumer-users and a commercial provider 12 or an information exchange server 10, or (3) multiple consumer-users and multiple commercial providers or multiple information exchange servers.

Accordingly, the invention allows an information exchange server 10 to act as a "trading center" where commercial providers and consumer-users may exchange and obtain information concerning products, services, consumer profiles, and other information related to business methods and practices. Additionally, the invention allows the information exchange server 10 to function as a "gatekeeper" of such information. In particular, the information exchange server 10 may act as the gatekeeper of information where control or

regulation of information distribution is desired. For example, one may desire that the distribution of consumer information 15 only be provided to a commercial provider 12 as authorized by a consumer-user 14. Also, an information exchange server 10 may wish to guarantee that the product and service information it provides is accurate and reliable and not misleading.

The invention allows small and medium sized commercial providers to perform as large businesses, while also allowing large commercial providers to function more efficiently with greater commercial range and capability by utilizing the business tools, techniques and information provided by the information exchange server 10. Such tools, techniques and information establishes and maintains a commercial provider's 12 access to relevant general and industry specific information. Therefore, the invention provides an interactive environment in which a commercial provider 12 may communicate with and learn from other commercial providers, information exchange servers and consumer-users.

The present invention also provides a means of performing purchasing transactions and a means of requesting and establishing consumer-user 14 registration with an information exchange server 10.

The commercial providers and consumer-users may be organizations or private individuals. The commercial providers and consumer-users may have professional or non-professional objectives for utilizing the information exchange server 10. The commercial providers and consumer-users may include corporate business analysts and managers and the objectives may include the procurement of marketing information and recreational products.

The invention may also be used as a platform for educational and online forums where a consumer-user 14 can network and educate themselves by accessing and tailoring the platform for highly focused and efficient exchange of information.

The invention provides highly personalized, relevant and in-depth industrial sector specific information and resources, such as trade publications, reference materials, expert analyses, contemporaneously occurring news stories, "how to" tutorials, and entertainment.

In linking and ostensibly integrating the commercial provider 12 with the information exchange server 10 through a common consumer-user interface 18 housed locally with the consumer-user 14, consumer-user 14 can search and retrieve novel, as well as archived, information, in addition to user friendly access to products and services. The invention provides consumer-user 14 with the ability to effectively integrate the available resources into business, as well as personal use. Professional utilization will allow direct access to such

resources as communication, educational, office equipment, recruiting services, computer resources, etc.

The invention provides a platform for complex “intelligent” consumer-user searches for information, products and services made available by the method and system of the present invention. The resources made accessible by the present invention are broadly defined to include, but not be limited to, all information ordinarily obtainable from a generic Internet web site. The invention provides a unique functionality that allows a consumer-user 14 to customize their customer-user interface 18 based upon their own unique search and retrieval experiences in a manner that allows them be more efficient in there acquisition and use of available resources. For, example a consumer-user 14 can customize the consumer-user interface 18, e.g., computer “desktop” configured to automatically display most often used local and server-based system resources. The commercial provider 12 may also request additional information about the consumer-user in order to customize his or her service to the consumer-user.

Information exchange server 10 will collect consumer information 15, e.g. billing and shipping information (consumer-user name, address, telephone, company name, company address, title), when the consumer-user 14 registers. Consumer-users 14 explicitly grant or deny to the information exchange server 10 the right to share this information 15 with commercial providers 12 through the information exchange server registration and profile management interface.

Consumer-users 14 need not log-in or otherwise authenticate themselves to information exchange server 10 before following a link to a commercial provider 12 site. If the consumer-user 14 reaches the point of purchase, the commercial provider 12 site will ask them if they want to provide exchange server database information 15 (either basic consumer-user information or billing/shipping information.).

A consumer-user 14 who does not wish to provide information 15 to information exchange server 10 will be able to register with the commercial provider 12 or use information stored by the commercial provider 12 only by leaving the co-branded portion of the site. At this point, commercial provider 12 does not share purchase or other information about the consumer-user 14 with the information exchange server 10.

The information exchange server 10 may provide a catalog of services and information in the form of a navigable hierarchy of topics, sections, and services. However, the information exchange server 10 will generally not have a commercial provider's 12



catalog for purposes of shopping. All shopping for hard goods will take place on the commercial provider's 12 site.

The commercial provider 12 will identify the consumer-user 14 by a unique consumer-user identifier number (ID) 20. This is a "hand-off" session identification ID 20. This ID 20 becomes associated, e.g., attached, with consumer-user information 15 utilized during a transmission session. Since this ID 20 may be in conflict with existing consumer-user ID's at the commercial provider 12 site, the commercial provider 12 may have to create an internal ID for the consumer-user 14. In this case, the consumer-user 14 will not be made aware of the existence of this internal ID.

Products and actual consumer-user product shipping, including temporal status, information 17 is provided by from the commercial provider 12 site to the information exchange server 10 site. The information exchange server 10 sends confirmation to the commercial provider 12 site upon receipt of the status and change information 17.

There are generally four types of exchanges of information between the information exchange server 10 and the commercial provider 12 . The exchanges include: 1) session connection with consumer identification number 20, 2) request for consumer information 22. 3) consumer information 15, and 4) status and change information 17, as illustrated in Figure 2. These exchanges, together with their processing at the information exchange server 10 and the commercial provider 12 site, determine the invention's process flows.

The present invention provides for transmission technology that communicates with a general computer programmable language, such as JAVA. The invention's protocol also provides public key encryption in the form of Secure Sockets Layer (SSL). Thus, authentication and authorization is provided.

Moreover, the registration aspect of the present invention provide a "secure back-end channel" to request 22 and exchange information 15 about a consumer-user 14.

The invention passes personal and purchasing information 15 between the information exchange server 10 site and the commercial provider 12 site. More specifically, consumer-user registration information 15 is shared as preauthorized by the consumer-user 14 , both for transaction and registration aspects of the invention. This results in a seamless consumer-user 14 experience.

When the consumer-user 14 desires to transfer to a commercial provider 12 site, he selects a link to a commercial provider 12 site. This link may appear in an ad, in a product review, or in other content on information exchange server 10. Information exchange server 10 redirects the consumer-user 14 to the appropriate page on the commercial provider 12 site,

sending with the consumer-user a session ID 20 and consumer-user type. This consumer-user "type" comprises a registration level where the highest level is required to actually conduct a transaction, wherein other levels can be acceptable for browsing. There are other types of data that accompany the consumer-user 14. For example, promotional data can be appended, e.g., "10% off today only", along with a return URL after the user's 14 visit is complete. The redirection page and the link to the commercial provider 12 must be in a Secure Sockets Layer (SSL) session in order to protect the session ID 20. The commercial provider 12 can request consumer information 15 at any time but should only request billing information when the consumer-user 14 indicates he wishes to purchase an item. The commercial provider 12 then uses a SSL connection to the information exchange server 10 in order to request registration and/or billing information 22. The request uses the session ID 20 as the key. The information exchange server 10 replies with the appropriate information 15 if the session is still valid.

The authorization is significant from the standpoint whether or not, how and with what particular specificity, the consumer-user 14 has agreed to use the invention's resources for its purchase prior to the satisfaction of such request.

In order to sustain the information exchange server 10 as the central repository of the customer's stored information 15, along with maintaining the private nature of such information 15, the commercial provider 12 must not cache billing, shipping, company or other information 15 provided by the information exchange server 10, unless authorized. Each time a commercial provider 12 accepts a purchase offer, the commercial provider 12 must request billing information directly from the information exchange server 10. This is also necessary because the consumer-user 14 may frequently or infrequently change consumer information 15 that is stored at the information exchange server 10, particularly after a prior purchase.

It should be noted that a consumer-user 14 can arrive at commercial provider 12 site having not obtained a session ID 20. This could happen if the consumer-user 14 bookmarks the co-branded site. In such situation, the commercial provider 12 will redirect anonymous consumer-user 14 who arrive at the co-branded site via a bookmark to information exchange server 10 for login or registration. Therefore, the commercial provider 12 can recognize this and, at the time of purchase, redirect the consumer-user 14 to the information exchange server 10 where the consumer-user 14 may login or register. For example, a servlet can be used that recognizes that the current user 14 session has no identification, such as by not seeing the existence of a prior appended URL, i.e., "cookie".

In these cases, the consumer-user 14 has several options. First, upon login to the information exchange server 10, the server 10 can re-direct the consumer-user 14 back to the commercial provider 12 with an indication 20 that the commercial provider 12 can now request consumer information 22. Second, the consumer-user 14 can enable the information exchange server 10 to share consumer information 15, i.e., a "billing flag." Then the information exchange server 10 automatically redirects the consumer-user 14 back to the commercial provider 12 site, sending this information 15 as a URL parameter. The commercial provider 12 can now request consumer-user information 22 and subsequently treat the consumer-user 14 as if he or she were logged in. Third, the consumer-user 14 can decline to provide consumer information 15 to the information exchange server 10. In this case the information exchange server 10 informs the consumer-user 14 that it cannot process his or her order.

Some commercial providers 12 require an additional authentication before each purchase. In this case, the commercial provider 12 redirects the consumer-user 14 to the information exchange server 10 page where the consumer-user 14 logs in. The information exchange server 10 then redirects the consumer-user 14 to the commercial provider 12 page.

When the consumer-user 14 completes a purchase, the commercial provider 12 uses the SSL connection to send a message containing purchasing information 24. Purchase information 24 can include item, quantity, and price information. If purchase information 24 message is undeliverable, the commercial provider 12 will continue to retry at regular intervals until delivery is successful.

If the commercial provider 12 has on-line access to delivery information 26 (e.g., carrier, waybill, and shipment status), it will send information 26 to the information exchange server 10 as asynchronous updates. The messages carrying information 26 will use the SSL channel. A single message may include more than one customer-user update. These update messages may arrive at any time and in any order. The information exchange server 10 will update customer account information to reflect the delivery status.

In a preferred embodiment, the invention requires that the consumer-user 14 first maintain a connection and be registered with the information exchange server 10 site prior to establishing a connection to the commercial provider 12 site for the purposes of purchasing directly from the commercial provider 12 site. However, in another embodiment the consumer-user 14 can connect, initially directly to the commercial provider 12 site, however, upon the registration of a consumer-user's 14 request to make a purchase, the consumer-user 14 will be interrogated to determine whether he is a pre-registered with the Information

exchange server 10 site. If the consumer-user 14 has been previously registered, the request to purchase will proceed with being satisfied in accordance with other objects of the invention. On the other hand, if the consumer-user 14 is not registered, he or she will be queried to determine if he would like to be a registered information exchange server consumer-user. If he or she so chooses, he or she will be automatically re-directed to the Information exchange server 10 to engage the registration process of the present invention.

The information exchange server 10 site collects and various consumer-user information 15 such as demographic, purchasing and marketing information. Purchase information 24 can include products purchased, price, quantity, etc. Overall, the communications script protocol, such as XML allow the types of information to be added and modified with relative ease. The information server 10 site may also provide discounts and information on such discounts, which can be obtained by consumer-users 14 and applied when purchasing from the commercial provider 12, such as purchase discounts.

In another embodiment the information exchange server 10 does not act as a “reseller” of goods. Therefore, the information exchange server 10 provides the mechanism to allow the consumer-user 14 to seamlessly request and retrieve information, products and services from various commercial provider 12 sites, as opposed to entering into separate transactions, which generally requires a third party site to request consumer-user purchase information 24, such as credit account particulars. However, in another embodiment, the information exchange server 10 functions as a direct provider of information, goods and services.

The commercial provider 12 has the ability to confirm that it can authenticate itself during a SSL session. The commercial provider 12 can track a consumer-user's 14 session as the consumer-user 14 goes back and forth between the commercial provider 12 and information exchange server 10. The result is that the consumer-user 14 sees the commercial provider 12 and information exchange server 10 as one site.

Figure 3 illustrates a preferred embodiment of the present invention's logical architecture. This diagram shows the interconnection of the essential components of the system. In the diagram, consumer-user 14 interacts with the information exchange server 10. They register 28, log-in 30, and visit. Objects 32, 34, and 36 residing on the application server 38 processes almost all requests. A register object 32 takes the consumer-user information 15 and writes it to the profiles database 40. A Security object 34 authenticates the consumer-user 14 by consulting the Lightweight Directory Access Protocol (LDAP) directory 42. The LDAP provides a means of using a file directory mechanism to store and

access data that is faster and easier to retrieve often used information than using a more conventional database. A standard API makes LDAP directory 42 accessible by commercial provider 12 and directory 42 is configured to be accessible via the public network or a private network such as an intranet. When a consumer-user 14 purchases information at the information exchange server 10, such as a document identified by the search engine, or a service such as Internet-based training 44, a shopping object 36 prepares the transaction. When the consumer-user 14 is ready to buy, the shopping object 36 invokes a purchase object 46 on the commerce server 48. The purchase object 46 processes the credit card transaction and updates the consumer-user's account record in the accounts database 50.

When a consumer-user 14 expresses interest in inspecting or purchasing goods supplied by a co-branded commercial provider 12, he or she follows a link to the commercial provider 12 site. Figure 3 portrays the commercial provider 12 with a similar technical architecture. The commercial provider 12 need only be able to establish a mutually authenticated SSL session with the information exchange server web server 52 and then communicate with the appropriate object there. The commercial provider 12 can then request billing information 22 when the consumer-user 14 says that they wish to make a purchase. In another embodiment of the invention the commercial provider 12 can also request registration information when the consumer-user 14 must authenticate himself or herself. Commercial provider 12 can also supply purchase information 24 and shipping information 26 to a co-buy object 54 on commerce server 48 when these become available.

In one embodiment, and as stated previously, the communication between the commercial provider 12 and the information exchange server 10 can take place over an SSL session. For example, all communication may be 128-bit SSL3.0 using client and server authentication and 3DES encryption. The commercial provider 12 is the client and initiates the session as if it is a browser. Once the information exchange server 10 has authenticated the commercial provider 12, it will check authorization by reading the entry for the commercial provider 12 in its LDAP directory 42. If authorization fails, the information exchange server 10 will end the session.

If authorization succeeds, the commercial provider 12 makes a request 22 and receives a response 15. The information exchange server 10 will process all messages that result in an update to its database independently. Thus, if it receives the same message multiple times, the processing results in no change to the database. The information exchange server 10 assumes that the commercial provider's 12 order number is unique. If a purchase order message arrives repeatedly, and the information exchange server 10 sees an

entry for this order number, it will not process the message but will reply that this is a duplicate.

In another embodiment, the commercial provider 12 creates only a small number of SSL sessions (one may be sufficient) and has HTTP connections run within existing sessions.

In another embodiment illustrated in Figure 1, all communication between the information exchange server 10, the commercial provider 12, and the consumer-user 14 can be via a standard HTTP (hypertext transfer protocol) or HTTPS (Secure Socket Layers, or SSL, for http), as necessary, to provide secure communications. The physical transport of information is by any medium that supports HTTP and HTTPS, such as the Internet or a dedicated virtual private network (VPN) or T1 connection between the parties. The consumer-user 14 needs only to have a standard Internet browser that supports SSL and a network connection, such as the Internet. The consumer-user interface 18 must locally house a browser that accepts prior URL destinations, i.e., "cookies". The information exchange server 12 accepts requests via its standard web listener via port 80 for HTTP or 443 for HTTPS connections. The commercial provider 12 does the same to receive the redirected requests from the consumer-user 14. The information exchange server 10 accepts requests and forwards them to the commercial provider 12 by initiating Java servlets that create the URL and parameter combination that is used to redirect the user to the commercial provider 12. Subsequently, servlets on both the information exchange server 10 and the commercial provider servers 38, 48, and 52 build XML data packets and manage their transfer between each other. The XML parser is freely available software from many sources including IBM and the server-side SSL software is licensed from any of a number of third-party software providers. The servlets access the databases 40, 42, and 50, typically a SQL database such as that from Oracle. The servlets are managed by a JVM or Java Virtual Machine that are widely and often freely available. The servlets and database can run on IBM-compatible NT servers or Unix based machines such as the ones from Sun Computers. The system configuration for the commercial provider 12 is similar. The commercial provider 12 runs session management software on the web server 56 to facilitate the process, as does the information exchange server 10.

The following describes several embodiments of the present invention implemented in by way of several computer programming language examples.

The present invention can be implemented with any general programmable language, such as JAVA®, which is in the form of a package distribution. The Java package contains

Java classes and methods that are compiled into byte codes to be executed as servlets and loaded on demand by a server. This allows a consumer provider 12 to be able to add the invention's functionality to its server applications.

The XML builders of the present invention are classes that build the information exchange server 10 XML client messages as a string. The handlers are classes that parse the commercial response messages. The connections are classes that manage the messaging duties of the commercial provider 12, converting XML documents from and into HTTP requests, and validating servers as part of the SSL handshake. In addition, the connections package enables batch transfer and deferred delivery of messages. The controllers are classes that communicate with the builders and handlers. The controller's function is to provide a simple high-level interface to a commercial provider's 12 application. It initiates the necessary objects so that the object methods can be easily called. The common package contains a set of common classes for managing exceptions, properties, and logging.

A message is built through successive calls to methods in the appropriate builder class. There is one method for each major element.

The application asks the controller to create a response handler for its message. The response handler parses the message and returns the element values as hash tables, where there is one hash table for each major element grouping.

An application can write purchase response and update messages into a queue for subsequent transmission. The queue can also be used for the case where communications are temporarily interrupted. The queue manager stores XML messages in files.

Figure 4 is a block diagram illustrating the classes of messaging that can be created and sent by the commercial provider.

The class diagram below shows the information exchange server client classes and the principal methods of each class.

The following sections describe messages (a.k.a. XML documents) in the sequence they follow when a consumer-user 14 makes a purchase. Messages have the format of XML documents contained within an HTTP message. DTD's for these documents will appear separately for each of these messages.

An HTTP message of type text/xml carries the request and the response. In addition to the request-response messages, information exchange server 10 passes information to the commercial provider 12 as URL query parameters when the consumer-user 14 links to the commercial provider 12. Similarly, the commercial provider 12 passes information to

information exchange server 10 in the same manner when it requires that the consumer-user 14 log in before purchasing goods.

The Link message contains the following information. All fields are text. The message described in the table corresponds to a URL.

Element	Type	Example
Session ID	Hexadecimal value	ABCDEF0123456789
Date/Time	Date-Time	Jan 01 2001:00:00:00.01
Consumer-user Type	Character Flag	A
Return URL	URL	<a href="http://www.informationexchange.server/supplies/fax/xe01">http://www.informationexchange.server/supplies/fax/xe01</a>

The Consumer-user types are as follows.

Flag	Meaning
A	Not logged in
B	Logged in, able to share billing and registration information
C	Logged in, unable to share billing and registration information
D	Logged in, able to share registration information only

In order to protect the session ID 20, the information exchange server 10 redirect and the commercial provider 12 URL to which the consumer-user 14 is redirected must be done over an SSL session. Once the consumer-user's session ID 20 has been recorded by the commercial provider 12, the consumer-user 14 can go back to an insecure session.

The commercial provider 12 sends this message to information exchange server 10 when it needs to retrieve consumer-user 14 registration information only, or registration, billing and shipping information. The commercial provider 12 sends the request over an SSL channel as an HTTP message. The message has the form of an HTTP message of type text/xml. The XML document contains the following information:

Element	Type	Child of	Example
Message	Element	Document	
Message Type	Text	Message	Req-R, Req-B
Message Date	Date-Time	Message	Jan 06 2001:00:00:00.01
Session	Element	Document	
Session ID	Hexadecimal value	Session	ABCDEF0123456789
Date/Time	Date-Time	Session	Jan 01 2001:00:00:00.01



The response to a request for billing information 22 is an HTTP response containing an XML documents. The table below shows the contents of the XML document. Most fields are self-explanatory. The "Index" element under session is a value passed to information exchange server 10 with a request for a login from the commercial provider 12. By returning this value, the commercial provider 12 can determine that the consumer-user 14 has successfully authenticated himself at information exchange server 10 before returning to the commercial provider 12.

Element	Type	Child of	Example
Message	Element	Document	
Message Type	Text	Message	Resp-R, Resp-B
Message Date	Date-Time	Message	Jan 06 2001:00:00:00.01
Message Status	Text	Message	"Success" "NoSession" "ServerError" "SessionExpired"
Message Status Text	Text	Message	"The Session ID did not match any known sessions"
Session	Element	Document	
Session ID	Hexadecimal value	Session	ABCDEF0123456789
Date/Time	Date-Time	Session	Jan 01 2001:00:00:00.01
Consumer-user Type	Character Flag	Session	A
Promo	Text	Session	"preferred" or "10%"
Index	Text	Session	AJIOJFONBL90
Consumer-user	Element		
Consumer-user ID	Text	Consumer-user	A19480808 (Unique Consumer-user ID)
Prefix	Name	Consumer-user	Mr.
Last Name	Name	Consumer-user	Doe
First Name	Name	Consumer-user	John
Middle Initial	Name	Consumer-user	A.
Suffix	Name	Consumer-user	Jr.
Credit Card ( <i>billing request only</i> )	Element	Document	
Credit Card Number	Number	Credit Card	5424174798071779
Individual Identifier	Number	Credit Card	4031
Plastic Expiration Date	Date	Credit Card	03/31/02 or /03/02
Credit Card	Name	Credit Card	John Doe

Individual Name			
Credit Card Street	Street Address	Credit Card	24 Pleasant St.
Credit Card City	City	Credit Card	Potsdam
Credit Card State	State	Credit Card	NY
Credit Card Zip	Zip code	Credit Card	13128
Credit Card Country	Country Code	Credit Card	US
Shipping ( <i>billing request only</i> )	Element	Document	
Address Line 1	Address	Shipping	Apartment 6B
Address Line 2	Address	Shipping	350 Fifth Ave.
Address Line 3	Address	Shipping	
City	Address	Shipping	New York
State	State	Shipping	NY
Zip	Zip code	Shipping	10118
Country	Country	Shipping	US

If the session has expired or there is no such session, the commercial provider 12 will treat the consumer-user 14 as if they had not yet logged in to the information exchange server 10 and redirect the consumer-user 14 to the information exchange server login page 30.

The commercial provider 12 sends this HTTP request message to information exchange server 10 when a consumer-user 14 completes a purchase or completes a change to an order (e.g. cancels a portion of the order.).

Element	Type	Child of	Example
Message	Element	Document	
Message Type	Text	Message	New or Cancel
Message Date	Date-Time	Message	Jan 06 2001:00:00:00.01
Session	Element	Document	
Session ID	Hexadecimal value	Session	ABCDEF0123456789
Date/Time	Date-Time	Session	Jan 01 2001:00:00:00.01
Consumer-user Type	Character Flag	Session	A
Consumer-user	Element		
Consumer-user ID	Text	Consumer-user	A19480808 (Unique Consumer-user ID)
Prefix	Name	Consumer-user	Mr.
Last Name	Name	Consumer-user	Doe
First Name	Name	Consumer-user	John
Middle Initial	Name	Consumer-user	A.
Suffix	Name	Consumer-user	Jr.
Order	Element		

Order Identifier	Number	Order	A0384091
Order Type Code	Number	Order	A609
Order Date	Date	Order	Jan 01 2001:00:00:00.01
Order Status	Text	Order	Received
Order Amount	Currency	Order	400.90
Order Tax	Currency	Order	32.05
Order Shipping	Currency	Order	28.03
Shipping Method	Text	Order	Surface Delivery
Item*	Element	Order	
Product Identifier	Number	Item	908070808008
Product Type Code	Number	Item	4031
Product Name Text	Text	Item	Xerox Toner
Product Retail Price Amount	Currency	Item	18.30
Product Quantity	Number	Item	4
Shipping Method	Text	Item	Air
Status	Text	Item	Shipped

The response to this message will be an HTTP message carrying an XML document.  
The table below describes the structure of this document.

Element	Type	Child of	Example
Message	Element	Document	
Message Type	Text	Message	New or Change
Message Date	Date-Time	Message	Jan 06 2001:00:00:00.01
Message Status	Text	Message	"Success" "NoSession" "ServerError" "SessionExpired" "Duplicate Order Number"
Message Status Text	Text	Message	"The Session ID did not match any known sessions"
Session	Element	Document	
Session ID	Hexadecimal value	Session	ABCDEF0123456789
Date/Time	Date-Time	Session	Jan 01 2001:00:00:00.01
Consumer-user Type	Character Flag	Session	A

If the request fails, the commercial provider 12 will log the Purchase Information Message in an error log that the commercial provider 12 forwards to information exchange server 10.

The commercial provider 12 sends this HTTP request message to information exchange server 10 when it updates the shipping status of an order 26.

Element	Type	Child of	Example
Consumer-user	Element		
Consumer-user ID	Text	Consumer-user	A19480808 (Unique Consumer-user ID)
Prefix	Name	Consumer-user	Mr.
Last Name	Name	Consumer-user	Doe
First Name	Name	Consumer-user	John
Middle Initial	Name	Consumer-user	A.
Suffix	Name	Consumer-user	Jr.
Order	Element	Document	
Order ID	Text	Order	B09e00e0
Date/Time	Date-Time	Order	Jan 01 2001:00:00:00.01
Order Status	Text	Order	Complete
Item *	Element		
Product Identifier	Text	Item	
Status	Text	Item	Shipped

The request is an HTTP document containing an XML document. The table below describes this document.

Element	Type	Child of	Example
Message	Element	Document	
Message Type	Text	Message	New or Change
Message Date	Date-Time	Message	Jan 06 2001:00:00:00.01
Message Status	Text	Message	"Success" "NoOrder" "ServerError" "NoConsumer-user"
Message Status Text	Text	Message	"The Order ID did not match any known orders"
Session	Element	Document	
Session ID	Hexadecimal value	Session	ABCDEF0123456789

Date/Time	Date-Time	Session	Jan 01 2001:00:00:00.01
Consumer-user Type	Character Flag	Session	A

The commercial provider 12 sends this message if the customer 14 returns an item or receives a credit or refund. Support for this message is optional. If the commercial provider 12 does not support the message, it must create a log file of credits that contains the information described in the following table:

Element	Type	Child of	Example
Message	Element	Document	
Message Type	Text	Message	Refund
Message Date	Date-Time	Message	Jan 06 2001:00:00:00.01
Session	Element	Document	
Session ID	Hexadecimal value	Session	ABCDEF0123456789
Date/Time	Date-Time	Session	Jan 01 2001:00:00:00.01
Consumer-user Type	Character Flag	Session	A
Consumer-user	Element		
Consumer-user ID	Text	Consumer-user	A19480808 (Unique Consumer-user ID)
Prefix	Name	Consumer-user	Mr.
Last Name	Name	Consumer-user	Doe
First Name	Name	Consumer-user	John
Middle Initial	Name	Consumer-user	A.
Suffix	Name	Consumer-user	Jr.
Order	Element		
Order Identifier	Number	Order	A0384091
Order Type Code	Number	Order	A609
Order Date	Date	Order	Jan 01 2001:00:00:00.01
Order Status	Text	Order	Received
Order Amount	Currency	Order	400.90
Order Tax	Currency	Order	32.05
Order Shipping	Currency	Order	28.03
Shipping Method	Text	Order	Surface Delivery
Order Refund Amount	Currency	Order	120.50
Tax Refund Amount	Currency	Order	7.40
Item*	Element	Order	
Product Identifier	Number	Item	908070808008
Product Type	Number	Item	4031

Code			
Product Name Text	Text	Item	Xerox Toner
Product Retail Price Amount	Currency	Item	18.30
Product Quantity	Number	Item	4
Shipping Method	Text	Item	Air
Product Credit Amount	Currency	Item	18.30
Status	Text	Item	Shipped

The response to this message is similar to the response to a status update message 26.

Element	Type	Child of	Example
Message	Element	Document	
Message Type	Text	Message	Refund Reply
Message Date	Date-Time	Message	Jan 06 2001:00:00:00.01
Message Status	Text	Message	"Success" "NoOrder" "ServerError" "NoConsumer-user"
Text Message Status	Text	Message	"The Order ID did not match any known orders"
Session	Element	Document	
Session ID	Hexadecimal value	Session	ABCDEF0123456789
Date/Time	Date-Time	Session	Jan 01 2001:00:00:00.01
Consumer-user Type	Character Flag	Session	A

The commercial provider 12 uses a URL query string to inform the information exchange server 10 about the return URL when it redirects a consumer-user 14 to login 30. The query string the commercial provider 12 uses has the following parameters:

Element	Type	Comments
Session ID	Hexadecimal value	Original Session ID Information exchange server passed to commercial provider
Date/Time	Date-Time	Current date/time
Index	Text String	AJIOJFONBL90
Return URL	URL	<a href="http://www.commercialprovider.com/supplies/fax/xe01?index=AJIOJFONBL90">http://www.commercial provider.com/supplies/fax/xe0 1?index=AJIOJFONBL90</a>

The "index" element is an additional security feature. By returning this value with the Billing Information Message, the commercial provider 12 can determine that the consumer-user 14 has successfully authenticated himself at the information exchange server 10 before returning to the commercial provider 12. The invention supports the use of the index for commercial provider 12 whose policy is to require an additional authentication prior to each purchase. If provider 12 does not, the information exchange server 10 only returns billing information if the consumer-user 14 has successfully logged in the current session, so the index is not necessary.

The following are examples of computer programmable code that can implement various aspects and embodiments of the present invention.

The following is a specific example of a request message.

```
<?xml version="1.0" encoding="UTF-8"?>
<!DOCTYPE ORDER SYSTEM "requestmessage.dtd">
<requestmessage messagetype = "A"
    year = "1999"
    month = "05"
    day = "09"
    hour = "14"
    minute = "42">
  <session      year = "1999"
    month = "05"
    day = "09"
    hour = "12"
    minute = "58">
    <sessionid>A849J0RX</sessionid>
  </session>
</requestmessage>
```

The following is a specific example of purchase information code.

```
<?xml version="1.0" encoding="UTF-8"?>
<!DOCTYPE ORDER SYSTEM "purchaseinfo.dtd">
<purchaseinfo>
  <message messagetype="purchase" year="1999" Month="Jun" Day="7"
    Hour="16" minute="11"/>
  <session year="1999" Month="Jun" Day="6" Hour="12" Minute="8"
    index =
      "A87fjbjk"/>
  <sessionid>A98fjd09880djHOL</sessionid>
  <promo>10 percent</promo>
```

```

<consumer-user>
  <consumer-userid>svajj02</consumer-userid>
  <prefix>Mr.</prefix>
  <last>Vajjhala</last>
  <first>Siva</first>

</consumer-user>
<order>
  <orderid>920928708092809809</orderid>
  <ordertype>cash</ordertype>
  <orderdate>09 Jun 1999 13:02:01</orderdate>
  <orderamount>15.39</orderamount>
  <ordercurrency>US</ordercurrency>
  <ordertax>2.14</ordertax>
  <ordershipping>3.80</ordershipping>
  <ordermethod>UPS</ordermethod>
  <ordertracking>89083098098098</ordertracking>
  <orderURL>http://www.officemax.com/shipping</orderURL>
</order>

<item>
  <productid>80980980980983</productid>
  <producttype>stationery</producttype>
  <productname>Woven Envelopes</productname>
  <productprice>$8.50</productprice>
  <productquantity>300</productquantity>
  <productshipmentod>UPS</productshipmethod>
  <productstatus>ordered</productstatus>
</item>
<item>
  <productid>87362989873600</productid>
  <producttype>paperclips</producttype>
  <productname>Deluxe Large</productname>
  <productprice>$6.89</productprice>
  <productquantity>3</productquantity>
  <productshipmentod>UPS</productshipmethod>
  <productstatus>ordered</productstatus>
</item>

<appdata>
  <note>Leave this order on the back porch</note>
  <distcenter>Poughkeepsie</distcenter>
</appdata>
</purchaseinfo>

```

The following is a specific example of a purchase response.

```

<?xml version="1.0" encoding="UTF-8"?>
<!DOCTYPE purchaseresponse SYSTEM "purchaseresponse.dtd">
<purchaseresponse>

```



```

<message messagestatus="nosession" messagetext="No session was
found corresponding to the one submitted" year="1999" month=""
day="18" hour="" minute="56"/>
<session month="Jul" year="" day="05" hour="07" minute="11"/>
</purchasereponse>

```

The following is a specific example of a bill response related to the order system.

```

<!DOCTYPE billresponse [
<!--5/7/99 Added cardphone. Made many card fields optional. Filled -
->
<!--5/7/99 in messagetype and consumer-usertype-->
<! 5/10/99 Fixed syntax -->
<!ELEMENT billresponse (message,session,consumer-
user,carddata?,shipping?)>

    <!ELEMENT message (status,statustext?)>
    <!ATTLIST message
                                messagetype (registration|credit)
#REQUIRED
                                year          CDATA #REQUIRED
                                month         CDATA #REQUIRED
                                day           CDATA #REQUIRED
                                hour          CDATA #REQUIRED
                                minute        CDATA #REQUIRED>
    <!ELEMENT status            (#PCDATA)>
    <!ELEMENT statustext        (#PCDATA)>
    <!ELEMENT session            (sessionid,consumer-usertype,promo?)>
    <!ATTLIST session
                                year          CDATA #REQUIRED
                                month         CDATA #REQUIRED
                                day           CDATA #REQUIRED
                                hour          CDATA #REQUIRED
                                minute        CDATA #REQUIRED
                                index         CDATA #REQUIRED>
    <!ELEMENT sessionid          (#PCDATA)>
    <!ELEMENT consumer-usertype  EMPTY>
    <!ATTLIST consumer-usertype  type
(unknown|nocard|noshare|card) "unknown">
    <!ELEMENT promo              (#PCDATA)>
    <!ELEMENT consumer-user      (consumer-userid, prefix?, last, first,
middle?, suffix?)>
    <!ELEMENT consumer-userid    (#PCDATA)>
    <!ELEMENT prefix              (#PCDATA)>
    <!ELEMENT last                (#PCDATA)>
    <!ELEMENT first               (#PCDATA)>
    <!ELEMENT middle              (#PCDATA)>
    <!ELEMENT suffix              (#PCDATA)>
    <!ELEMENT carddata           (cardno,cardid?,carddate,cardname,
                                cardstreenum?,cardstreet?,
                                cardstate?,cardzip?,cardcountry?)>

```

```

<!ELEMENT          cardno          (#PCDATA)
<!ELEMENT          cardid          (#PCDATA)
<!ELEMENT          carddate        (#PCDATA)
<!ELEMENT          cardname        (#PCDATA)
<!ELEMENT          cardstreetnum   (#PCDATA)
<!ELEMENT          cardstreet      (#PCDATA)
<!ELEMENT          cardstate       (#PCDATA)
<!ELEMENT          cardzip         (#PCDATA)
<!ELEMENT          cardcountry     (#PCDATA)
<!ELEMENT          cardphone       (#PCDATA) >
<!ELEMENT shipping
(shipaddr1,shipaddr2?,shipaddr3?,shipcity,shipstate,
shipzip,shipcountry?,shipphone?)>
  <!ELEMENT          shipaddr1      (#PCDATA)
  <!ELEMENT          shipaddr2      (#PCDATA)
  <!ELEMENT          shipaddr3      (#PCDATA)
  <!ELEMENT          shipcity       (#PCDATA)
  <!ELEMENT          shipstate      (#PCDATA)
  <!ELEMENT          shipzip        (#PCDATA)
  <!ELEMENT          shipcountry    (#PCDATA)
  <!ELEMENT          shipphone      (#PCDATA) >

]>

```

The following is a specific example of a bill response.

```

<?xml version="1.0" encoding="UTF-8"?>
<!DOCTYPE ORDER SYSTEM "billresponse.dtd">
<billresponse>

  <message messagetype="purchase" year="1999" Month="Jun" Day="7"
Hour="16" minute="11"/>
  <session year="1999" Month="Jun" Day="6" Hour="12" Minute="8"
index =
    "A87fjbjk"/>
    <sessionid>A98fjd09880djHOL</sessionid>
    <consumer-usertype>card</consumer-usertype>
    <promo>10 percent</promo>
  <consumer-user>
    <consumer-userid>svajj02</consumer-userid>
    <prefix>Mr.</prefix>
    <last>Vajjhala</last>
    <first>Siva</first>
  </consumer-user>
  <carddata>
    <cardno>5424180167844932</cardno>
    <cardid>4903</cardid>
    <carddate>03/31/00</carddate>
    <cardname>George S. Jones</cardname>
    <cardstreetnum>583</cardstreetnum>
    <cardstreet>Elm St.</cardstreet>

```

```
<cardcity>Union City</cardcity>
<cardstate>NJ</cardstate>
<cardcountry>US</cardcountry>
<cardzip>23102</cardzip>
<cardphone>603-292-2929</cardphone>
</carddata>
<shipping>
  <shippaddr1>583 Elm St.</shippaddr1>
  <shipcity>Union City</shipcity>
  <shipstate>NJ</shipstate>
  <shipzip>23102</shipzip>
  <shipcountry>US</shipcountry>
  <shipphone>603-343-4030</shipphone>
</shipping>
</billresponse>
```

Various preferred embodiments of the invention have now been described in fulfillment of the objects of the invention. While these embodiments have been set forth by way of example, various other embodiments and modifications will be apparent to those skilled in the art. Accordingly, it should be understood that the invention is not limited to such embodiment, but encompasses all that is described in the following claims.

## CLAIMS

What is claimed is:

1. A method of conducting a transaction over a network between a consumer-user and a commercial provider using an information exchange server including consumer information, comprising:
  - processing a transaction over said network between said consumer-user and said commercial provider using said consumer information stored in said information exchange server, without registering said consumer information with said commercial provider.
2. A method of managing online transactions between a consumer-user and a commercial provider over a distributed network, said method comprising:
  - providing an online information exchange server;
  - accessing the online information exchange server using a consumer-user device and selecting a commercial provider site from said online information exchange server;
  - establishing a transaction session between said consumer-user device and said commercial provider site;
  - providing consumer-user related information to said commercial provider site;
  - and
  - processing a consumer-user requested transaction relying on said consumer-user related information provided by said online information exchange server.
3. The method as in claim 2, further comprising providing transaction related information to said online information exchange server.

4. The method as in claim 2, wherein said consumer-user related information comprises at least one of consumer-user payment related information, consumer-user identification, consumer-user authentication and shipping information.

5. The method as in claim 2, further comprising registering with said online information exchange server said consumer-user related information.

6. The method as in claim 5, wherein said online information exchange server provides said consumer-user related information upon commercial provider site requesting said consumer-user related information from said online information exchange server.

7. The method as in claim 6, wherein said commercial provider site requests consumer-user related information after said consumer-user requested a transaction at said commercial provider site.

8. The method as in claim 7, wherein said consumer-user registers with said online information exchange server said consumer-user related information upon request by said commercial provider site prior to processing a consumer-user requested transaction.

9. The method as in claim 8, wherein said commercial provider site requests said consumer-user to register said consumer-user related information by directing said consumer-user back to said online information exchange server.

10. The method as in claim 2, wherein said commercial provider manages fulfillment of said transaction processed directly with said consumer-user.

11. The method as in claim 2, wherein said distributed network is an Internet.

12. The method as in claim 2, wherein said online transaction comprises at least one of a product and a service.

13. The method as in claim 2, wherein said commercial provider offers said consumer-user a different cost for a transaction processed during a transaction session established via said online information exchange server as compared to a transaction session established without said online information exchange server.

14. The method as in claim 13, wherein said commercial provider offers said consumer-user a reduced cost for said transaction processed during said transaction session established via said online information exchange server.

15. The method as in claim 2, wherein said commercial provider site directs a prior consumer-user who was established via said online information exchange server to establish a transaction session via said online information exchange server if said prior consumer-user attempts to request a transaction by directly accessing said commercial provider site without first establishing a transaction session via said online information exchange server.

16. A system for managing online transaction between a consumer-user and a commercial provider over a distributed network, comprising :

a plurality of commercial provider sites communicating with said distributed network;

an online information exchange server communicating with said distributed network; and

a consumer-user device communicating with said distributed network, said consumer-user device structured and configured to access said online information exchange server and select a commercial provider site from said online information exchange server,

said online information exchange server structured and configured to establish a transaction session between said consumer-user device and said commercial provider site, and to provide consumer-user related information to said commercial provider site, and

said commercial provider site structured and configured to process a consumer-user requested transaction relying on said consumer-user related information provided by said online information exchange server.

17. A method for storing consumer information on a server and permitting a consumer-user to transact with a commercial provider over a distributed network, comprising:

receiving consumer information from a consumer-user device over a distributed network;

storing said consumer information on a server;

permitting said consumer-user device to select a commercial provider using said server;

establishing a transaction session between said consumer-user device and said commercial provider over said distributed network; and

transmitting said consumer information to said commercial provider.

18. A system for storing consumer information on a server and permitting a consumer-user to transact with a commercial provider over a distributed network, comprising:

a server communicating with said distributed network;

a plurality of commercial providers communicating with said distributed network; and

a consumer-user device communicating with said distributed network, said consumer-user device adapted to access said server and store consumer information on said server and to select a commercial provider site using said server,

said server adapted to establish a transaction session between said consumer-user device and said commercial provider site, and to provide said consumer information to said commercial provider site, and

said commercial provider site adapted to process a consumer-user requested transaction relying on said consumer information provided by said server.

19. An online interface apparatus for managing online transactions between a consumer-user and a commercial provider, comprising:

means for permitting access by said consumer-user via a consumer-user device to initiate a transaction session;

means for linking said consumer-user to a selected commercial provider site;

means for establishing a transaction session between said consumer-user device and said selected commercial provider site; and

means for providing consumer-user related information to said selected commercial provider site for processing a consumer-user requested transaction.

20. An apparatus for establishing a commercial provider site for providing online transactions to a consumer-user referred via an online information exchange server, comprising:

means for responding to access by said consumer-user via a consumer-user device through a link established via said online information exchange server;

means for permitting a transaction session to be established between said consumer-user device and said commercial provider site;



means for requesting consumer-user related information from said online information exchange server; and

means for processing a consumer-user requested transaction relying on said consumer-user related information provided by said online information exchange server.

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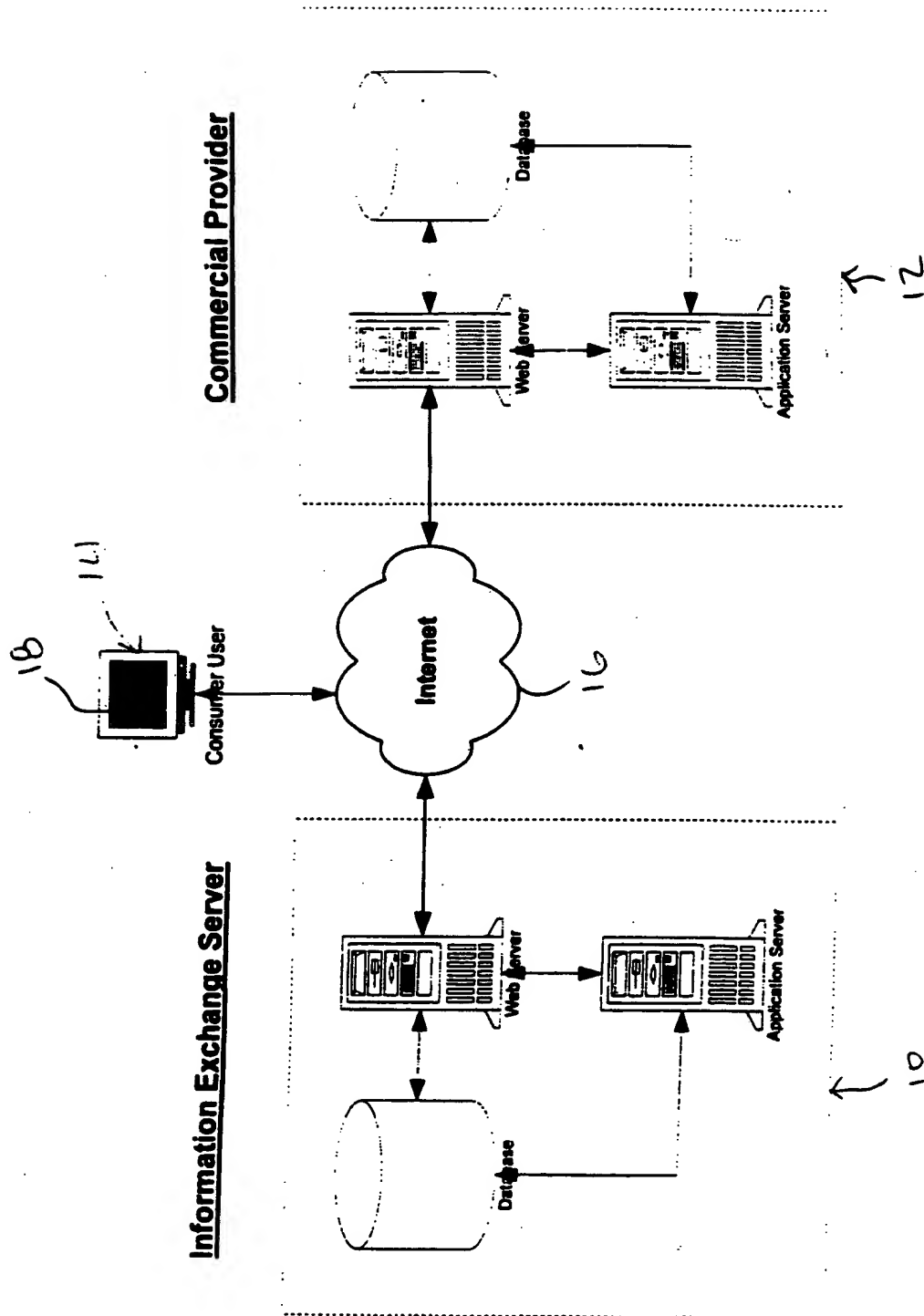


Fig. 1

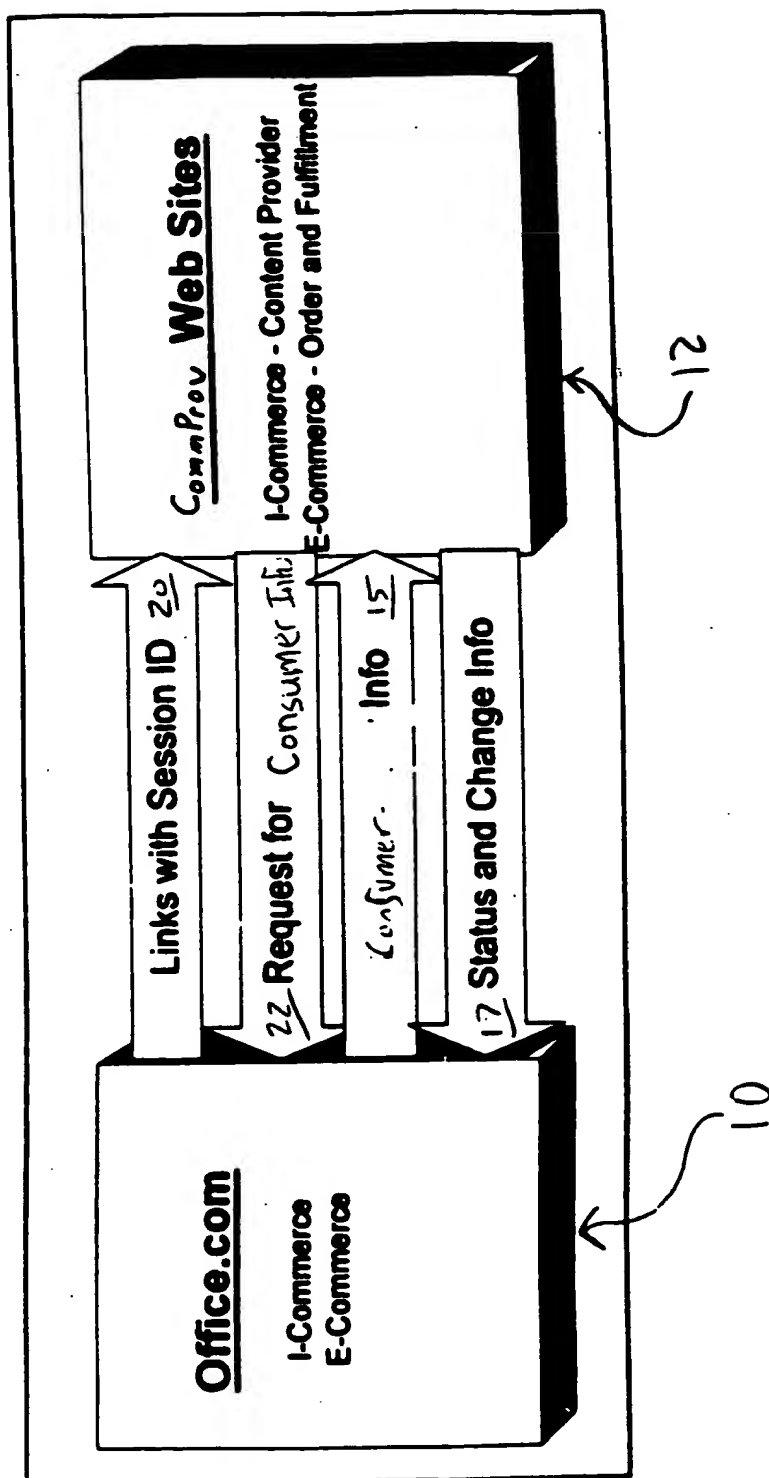


Fig. 2

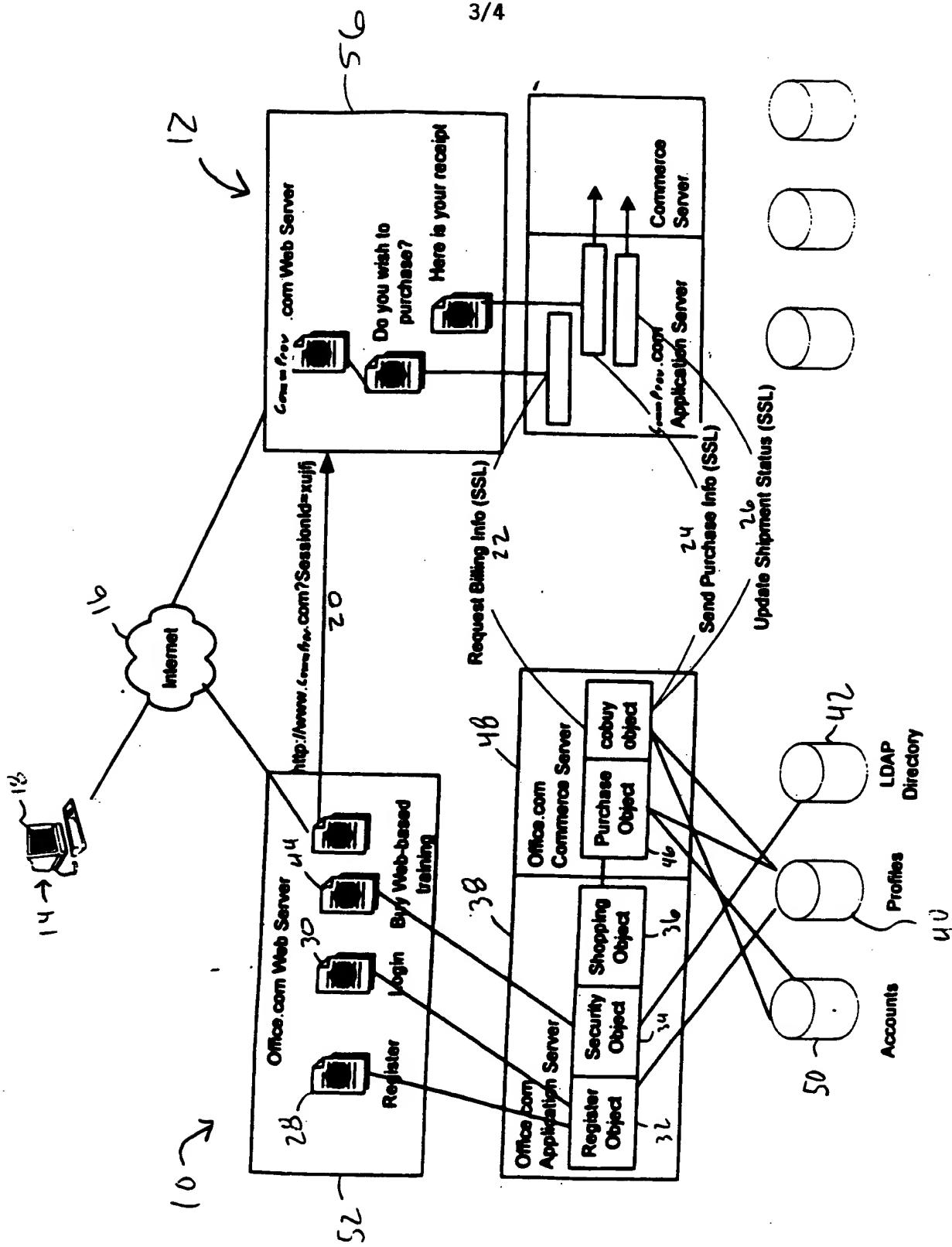
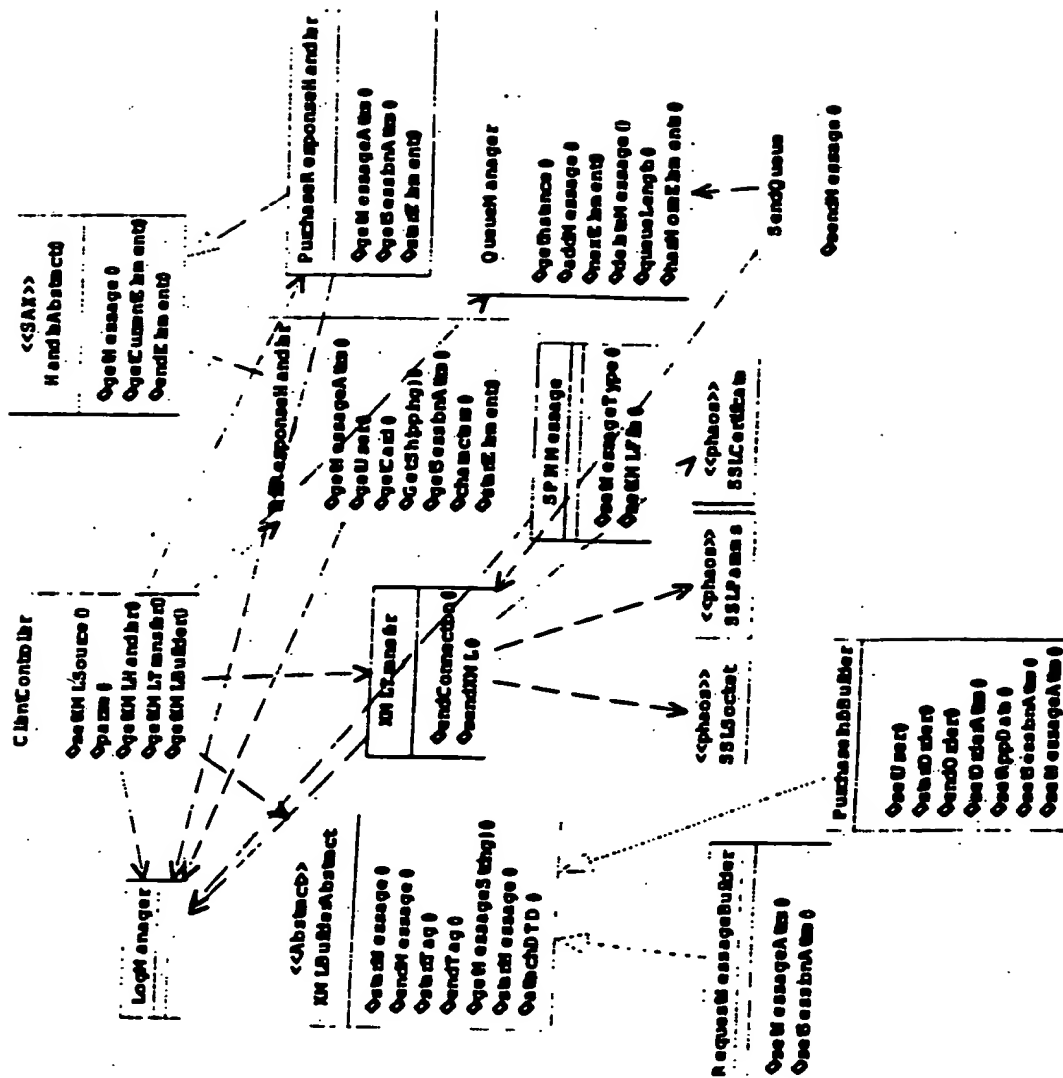


Fig. 3



**Fig. 4**

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